

exclusively on this milk for but one year was retarded in growth, suffered markedly in nutrition, developed a hemorrhagic eruption, and showed marked weakness of the extremities. At the autopsy of pig No. 1, in the place of the fat there was a homogeneous translucent layer of gelatinous-looking material. This gelatinous layer consisted chiefly of spherical and oval cells, the average diameter of which was from one-half to one-sixth that of normal fat cells. Between these cells were bundles of connective-tissue fibres and elastic fibres. In another pig the skin from the back of the neck was removed from time to time; after nine weeks some shrinkage in size and some irregularity in the form of the fat cells was noted. After fourteen weeks they were shrunk from two-thirds to one-half of the normal size. Twenty weeks from the beginning of the diet the fat appeared pale, but not quite gelatinous, and the cells showed still further reduction in size. The serous surfaces of one pig showed a number of small superficial hemorrhages. The lower lobe of the right lung showed numerous infarctions. The kidneys appeared large in comparison with the body weight. There was considerable granular degeneration in the tubules, and desquamation. He considers the condition one of chronic parenchymatous degeneration. In pig No. 1 an endeavor was made to determine the nature of the subcutaneous gelatinous material. From this a proteid, probably nucleo-albumin, was derived. The lesions resulting from fat starvation, at least in the pig, did not resemble or even suggest those of rickets. Second, prolonged fat starvation leads to the entire disappearance of fat from the adipose tissues. The form of fat atrophy observed as the result of experimental fat starvation corresponds to serous atrophy described by Fleming, and is essentially the same type of fat atrophy as that found in the epicardial and perineal fat in the human subject as the result of wasting disease.

Ueber Spontane Gangrän.—HAGA (*Virch. Archiv*, clii.) describes a form of gangrene which is comparatively common in Japan. The gangrene begins spontaneously in the form of fissures or ulcers of the toes, then advances slowly until a line of demarcation is formed between the sound and diseased tissue. In some cases the gangrene heals under suitable treatment; in others it advances continuously and extends to the thigh. He gives thirty-four cases, of which only one was in a woman. The disease was most frequent between thirty-eight and forty-seven years, showing a marked difference from senile gangrene. He gives the clinical history of a number of cases. In all of the cases the radial pulse was hard and difficult to feel. The most important lesions in the examination of the tissues were found in the arteries of the part.

The illustrations which accompany the article show in some cases the typical picture of obliterating endarteritis; in others the arteries seem to become closed by an organized thrombus. In nine of the cases, along with the obliterating endarteritis, there was a cellular infiltration in the tissues, which he regarded as showing the syphilitic character of the process.

Notes on the Pathological Changes in the Organs of Birds Infected with Hæmocytoza.—W. G. McCULLOM (*Journal of Experimental Medicine*, January, 1898) gives the results of autopsies performed on the infected birds,

the blood of which was studied by Opie. The conditions found in infection with the two sorts of organisms were practically identical. The capillaries of the liver were, as a rule, dilated, but in a few instances they were in places so crowded with infected corpuscles that the lumen was occluded. Isolated infected corpuscles were seen scattered in the capillaries of the liver, but were more numerous in the larger vessels. The organisms, in greater or less proportion, were extruded from the corpuscles and lay in the capillaries as pigmented spheres. The larger masses of pigment in the liver were contained in large cells similar to those found in malaria. The pigment was both black and straw-colored; did not give the iron reaction. The pigment was not only contained in the large macrophages, but was also found in the endothelial cells of the capillaries. Little could be said of the effect of the organisms or their products on the tissues. Necroses were observed in the organs of several specimens, but their dependence on the parasites could not be proved. The spleen is deeply pigmented, the pigment being contained in the large cells in the pulp. Degenerative changes similar to those found in the liver were found in the spleen. The visceral changes were not marked. The brain was normal. Organisms were occasionally seen in the capillaries, but they were never collected in masses sufficient to occlude the lumen. In general the changes found in the organs were very similar to those found in malaria.

HYGIENE AND PUBLIC HEALTH.

UNDER THE CHARGE OF

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Relation of River and Ground Water.—In providing for public water supplies wells are frequently sunk alongside of rivers for the purpose of intercepting the ground water on its way to the stream. It is perhaps most often done when the supply has hitherto been pumped from the river itself and it is desired to supplement it by a purer water for which little if any filtration is required. That such is the natural and most usual course for the ground-water to take is well known; but, being dependent on gravitation and the relative degrees of pressure exerted by the water in the river bed and in the porous soil around, it is liable to variation or disturbance.

Thus when the river flows through a highly permeable sandy soil the levels of its stream and of the ground water rise and fall together as parts of the same stream and moving in the same direction (*e. g.*, Bath, N. Y.), and when, in consequence of prolonged drought or excessive pumping, the level of the ground water has sunk below that of the river or of its bottom the movements